aka.
REQUESTED (NARROWER)

Berch 10_688606 09/13/2005

(structure searched is attached as structure "L19")

```
=> file registry
FILE 'REGISTRY' ENTERED AT 10:13:08 ON 13 SEP 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:   12 SEP 2005  HIGHEST RN 862971-50-4
DICTIONARY FILE UPDATES:  12 SEP 2005  HIGHEST RN 862971-50-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

*********************************************************************
*                                                                   *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005.  A new display format, IDERL, is now    *
* available and contains the CA role and document type information. *
*                                                                   *
*********************************************************************

Structure search iteration limits have been increased.  See HELP SLIMITS
for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> file caplus
FILE 'CAPLUS' ENTERED AT 10:13:30 ON 13 SEP 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)


Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
American Chemical Society and is provided to assist you in searching
databases on STN.  Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 13 Sep 2005  VOL 143 ISS 12
FILE LAST UPDATED: 12 Sep 2005  (20050912/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

  This file contains CAS Registry Numbers for easy and accurate
```

substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> file uspatfull
FILE 'USPATFULL' ENTERED AT 10:13:36 ON 13 SEP 2005
CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 8 Sep 2005 (20050908/PD)
FILE LAST UPDATED: 8 Sep 2005 (20050908/ED)
HIGHEST GRANTED PATENT NUMBER: US6941576
HIGHEST APPLICATION PUBLICATION NUMBER: US2005198721
CA INDEXING IS CURRENT THROUGH 8 Sep 2005 (20050908/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 8 Sep 2005 (20050908/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Jun 2005
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Jun 2005

>>> USPAT2 is now available. USPATFULL contains full text of the <<<
>>> original, i.e., the earliest published granted patents or <<<
>>> applications. USPAT2 contains full text of the latest US <<<
>>> publications, starting in 2001, for the inventions covered in <<<
>>> USPATFULL. A USPATFULL record contains not only the original <<<
>>> published document but also a list of any subsequent <<<
>>> publications. The publication number, patent kind code, and <<<
>>> publication date for all the US publications for an invention <<<
>>> are displayed in the PI (Patent Information) field of USPATFULL <<<
>>> records and may be searched in standard search fields, e.g., /PN, <<<
>>> /PK, etc. <<<

>>> USPATFULL and USPAT2 can be accessed and searched together <<<
>>> through the new cluster USPATALL. Type FILE USPATALL to <<<
>>> enter this cluster. <<<
>>> <<<
>>> Use USPATALL when searching terms such as patent assignees, <<<
>>> classifications, or claims, that may potentially change from <<<
>>> the earliest to the latest publication. <<<

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> file casreact
FILE 'CASREACT' ENTERED AT 10:13:41 ON 13 SEP 2005
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.

FILE CONTENT:1840 - 11 Sep 2005 VOL 143 ISS 11

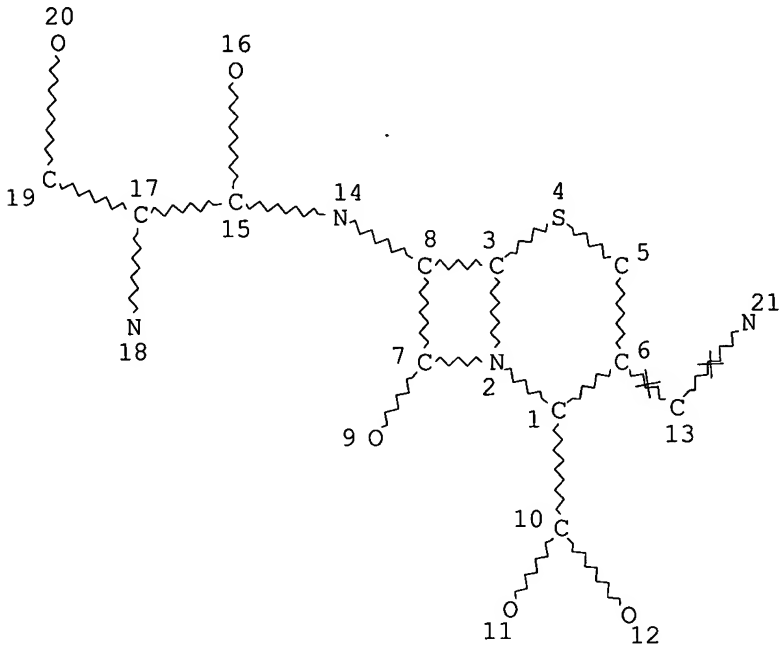
New CAS Information Use Policies, enter HELP USAGETERMS for details.

```
************************************************************
*                                                          *
*     CASREACT now has more than 9.2 million reactions     *
*                                                          *
************************************************************
```

Some CASREACT records are derived from the ZIC/VINITI database (1974-1991) provided by InfoChem, INPI data prior to 1986, and Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich.

This file contains CAS Registry Numbers for easy and accurate substance identification.

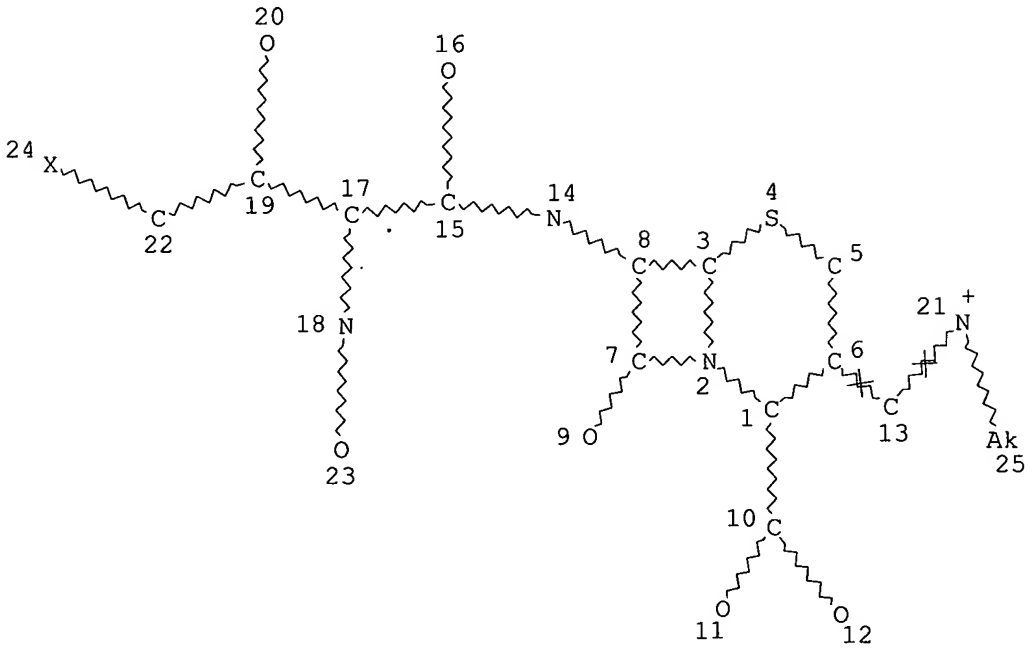
=> d stat que L23
L15 STR




NODE ATTRIBUTES:

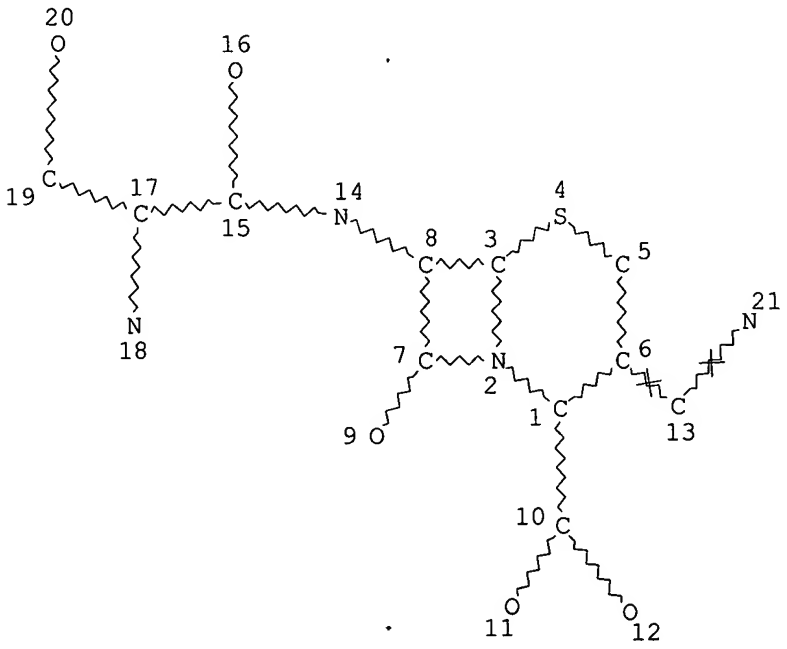
| | | | | |
|---|---|---|---|---|
| NSPEC | IS | R | AT | 1 |
| NSPEC | IS | R | AT | 2 |
| NSPEC | IS | R | AT | 3 |
| NSPEC | IS | R | AT | 4 |
| NSPEC | IS | R | AT | 5 |
| NSPEC | IS | RC | AT | 6 |
| NSPEC | IS | R | AT | 7 |
| NSPEC | IS | R | AT | 8 |
| NSPEC | IS | C | AT | 9 |
| NSPEC | IS | C | AT | 10 |
| NSPEC | IS | C | AT | 11 |
| NSPEC | IS | C | AT | 12 |
| NSPEC | IS | RC | AT | 13 |
| NSPEC | IS | C | AT | 14 |
| NSPEC | IS | C | AT | 15 |
| NSPEC | IS | C | AT | 16 |
| NSPEC | IS | C | AT | 17 |
| NSPEC | IS | C | AT | 18 |
| NSPEC | IS | C | AT | 19 |
| NSPEC | IS | C | AT | 20. |
| NSPEC | IS | RC | AT | 21 |
| CONNECT | IS | E3 RC | AT | 7 |
| CONNECT | IS | E1 RC | AT | 9 |
| CONNECT | IS | E3 RC | AT | 10 |

```
CONNECT IS E1  RC AT  11
CONNECT IS E3  RC AT  15
CONNECT IS E1  RC AT  16
CONNECT IS E3  RC AT  17
CONNECT IS E3  RC AT  19
CONNECT IS E1  RC AT  20
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT   9 10 11 12 13 14 15 16 17 18 19 20 21
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  21

STEREO ATTRIBUTES: NONE
L17          49 SEA FILE=REGISTRY SSS FUL L15
L19             STR
```

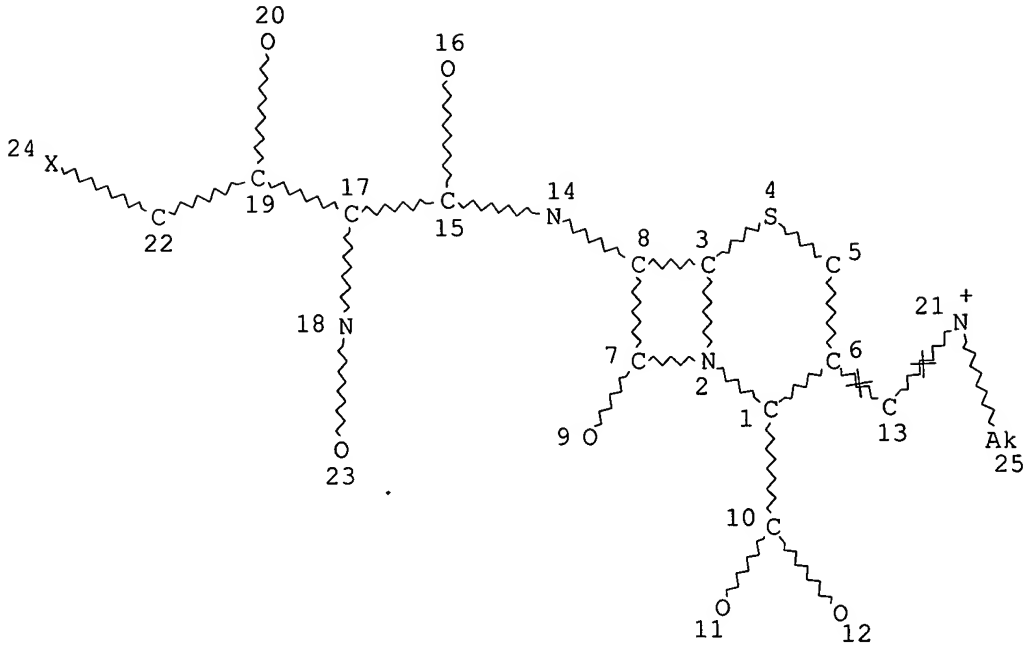



```
NODE ATTRIBUTES:
CHARGE  IS *+     AT  21
NSPEC   IS R      AT   1
NSPEC   IS R      AT   2
NSPEC   IS R      AT   3
NSPEC   IS R      AT   4
NSPEC   IS R      AT   5
NSPEC   IS RC     AT   6
NSPEC   IS R      AT   7
NSPEC   IS R      AT   8
NSPEC   IS C      AT   9
NSPEC   IS C      AT  10
NSPEC   IS C      AT  11
NSPEC   IS C      AT  12
NSPEC   IS RC     AT  13
NSPEC   IS C      AT  14
NSPEC   IS C      AT  15
```

```
NSPEC   IS C       AT  16
NSPEC   IS C       AT  17
NSPEC   IS C       AT  18
NSPEC   IS C       AT  19
NSPEC   IS C       AT  20
NSPEC   IS RC      AT  21
NSPEC   IS C       AT  22
NSPEC   IS C       AT  23
NSPEC   IS C       AT  24
NSPEC   IS C       AT  25
CONNECT IS E3  RC AT   7
CONNECT IS E1  RC AT   9
CONNECT IS E3  RC AT  10
CONNECT IS E1  RC AT  11
CONNECT IS E3  RC AT  15
CONNECT IS E1  RC AT  16
CONNECT IS E3  RC AT  17
CONNECT IS E3  RC AT  19
CONNECT IS E1  RC AT  20
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT   9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  25

STEREO ATTRIBUTES: NONE
L22           8 SEA FILE=REGISTRY SUB=L17 SSS FUL L19
L23           2 SEA FILE=CAPLUS ABB=ON  PLU=ON  L22

=> d stat que L28
L15             STR
```



```
NODE ATTRIBUTES:
NSPEC   IS R      AT   1
NSPEC   IS R      AT   2
NSPEC   IS R      AT   3
NSPEC   IS R      AT   4
NSPEC   IS R      AT   5
NSPEC   IS RC     AT   6
NSPEC   IS R      AT   7
NSPEC   IS R      AT   8
NSPEC   IS C      AT   9
NSPEC   IS C      AT  10
NSPEC   IS C      AT  11
NSPEC   IS C      AT  12
NSPEC   IS RC     AT  13
NSPEC   IS C      AT  14
NSPEC   IS C      AT  15
NSPEC   IS C      AT  16
NSPEC   IS C      AT  17
NSPEC   IS C      AT  18
NSPEC   IS C      AT  19
NSPEC   IS C      AT  20
NSPEC   IS RC     AT  21
CONNECT IS E3  RC AT   7
CONNECT IS E1  RC AT   9
CONNECT IS E3  RC AT  10
CONNECT IS E1  RC AT  11
CONNECT IS E3  RC AT  15
CONNECT IS E1  RC AT  16
CONNECT IS E3  RC AT  17
CONNECT IS E3  RC AT  19
CONNECT IS E1  RC AT  20
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT   9 10 11 12 13 14 15 16 17 18 19 20 21
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  21

STEREO ATTRIBUTES: NONE
L17          49 SEA FILE=REGISTRY SSS FUL L15
L19             STR
```




NODE ATTRIBUTES:

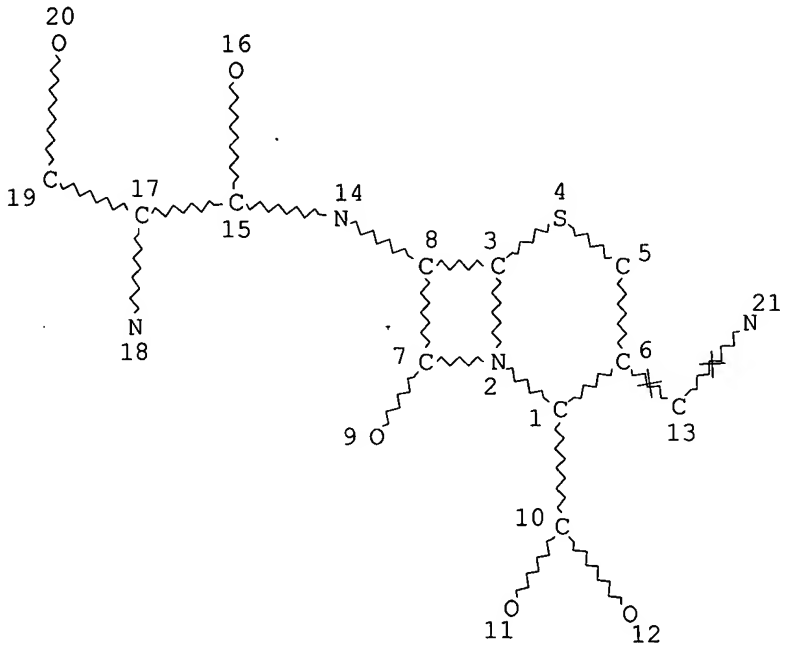
| | | | | |
|---|---|---|---|---|
| CHARGE | IS | *+ | AT | 21 |
| NSPEC | IS | R | AT | 1 |
| NSPEC | IS | R | AT | 2 |
| NSPEC | IS | R | AT | 3 |
| NSPEC | IS | R | AT | 4 |
| NSPEC | IS | R | AT | 5 |
| NSPEC | IS | RC | AT | 6 |
| NSPEC | IS | R | AT | 7 |
| NSPEC | IS | R | AT | 8 |
| NSPEC | IS | C | AT | 9 |
| NSPEC | IS | C | AT | 10 |
| NSPEC | IS | C | AT | 11 |
| NSPEC | IS | C | AT | 12 |
| NSPEC | IS | RC | AT | 13 |
| NSPEC | IS | C | AT | 14 |
| NSPEC | IS | C | AT | 15 |
| NSPEC | IS | C | AT | 16 |
| NSPEC | IS | C | AT | 17 |
| NSPEC | IS | C | AT | 18 |
| NSPEC | IS | C | AT | 19 |
| NSPEC | IS | C | AT | 20 |
| NSPEC | IS | RC | AT | 21 |
| NSPEC | IS | C | AT | 22 |
| NSPEC | IS | C | AT | 23 |
| NSPEC | IS | C | AT | 24 |
| NSPEC | IS | C | AT | 25 |
| CONNECT | IS | E3 RC | AT | 7 |
| CONNECT | IS | E1 RC | AT | 9 |
| CONNECT | IS | E3 RC | AT | 10 |
| CONNECT | IS | E1 RC | AT | 11 |
| CONNECT | IS | E3 RC | AT | 15 |
| CONNECT | IS | E1 RC | AT | 16 |
| CONNECT | IS | E3 RC | AT | 17 |

CONNECT IS E3 RC AT 19
CONNECT IS E1 RC AT 20
DEFAULT MLEVEL IS ATOM
MLEVEL IS CLASS AT 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 25

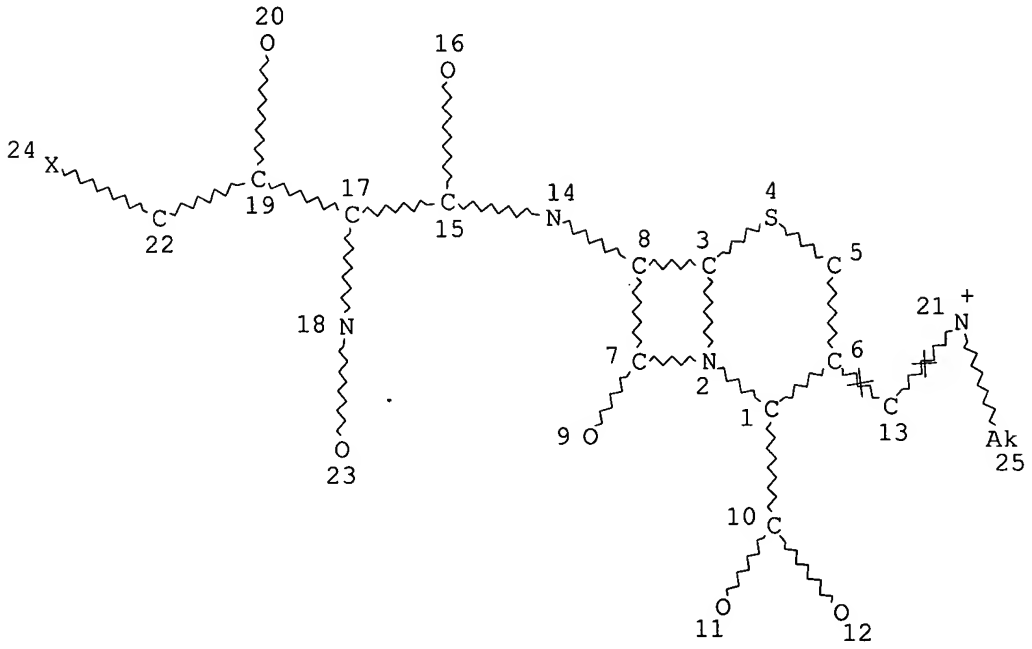
STEREO ATTRIBUTES: NONE
L22 8 SEA FILE=REGISTRY SUB=L17 SSS FUL L19
L28 2 SEA L22 USPATFULL, CASREACT hits

=> d que L29
L15 STR




NODE ATTRIBUTES:
NSPEC IS R AT 1
NSPEC IS R AT 2
NSPEC IS R AT 3
NSPEC IS R AT 4
NSPEC IS R AT 5
NSPEC IS RC AT 6
NSPEC IS R AT 7
NSPEC IS R AT 8
NSPEC IS C AT 9
NSPEC IS C AT 10
NSPEC IS C AT 11
NSPEC IS C AT 12
NSPEC IS RC AT 13
NSPEC IS C AT 14
NSPEC IS C AT 15
NSPEC IS C AT 16

```
NSPEC   IS C       AT  17
NSPEC   IS C       AT  18
NSPEC   IS C       AT  19
NSPEC   IS C       AT  20
NSPEC   IS RC      AT  21
CONNECT IS E3  RC AT   7
CONNECT IS E1  RC AT   9
CONNECT IS E3  RC AT  10
CONNECT IS E1  RC AT  11
CONNECT IS E3  RC AT  15
CONNECT IS E1  RC AT  16
CONNECT IS E3  RC AT  17
CONNECT IS E3  RC AT  19
CONNECT IS E1  RC AT  20
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT   9 10 11 12 13 14 15 16 17 18 19 20 21
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  21

STEREO ATTRIBUTES: NONE
L17          49 SEA FILE=REGISTRY SSS FUL L15
L19             STR
```




```
NODE ATTRIBUTES:
CHARGE  IS *+      AT  21
NSPEC   IS R       AT   1
NSPEC   IS R       AT   2
NSPEC   IS R       AT   3
NSPEC   IS R       AT   4
NSPEC   IS R       AT   5
NSPEC   IS RC      AT   6
NSPEC   IS R       AT   7
```

```
NSPEC   IS R      AT   8
NSPEC   IS C      AT   9
NSPEC   IS C      AT  10
NSPEC   IS C      AT  11
NSPEC   IS C      AT  12
NSPEC   IS RC     AT  13
NSPEC   IS C      AT  14
NSPEC   IS C      AT  15
NSPEC   IS C      AT  16
NSPEC   IS C      AT  17
NSPEC   IS C      AT  18
NSPEC   IS C      AT  19
NSPEC   IS C      AT  20
NSPEC   IS RC     AT  21
NSPEC   IS C      AT  22
NSPEC   IS C      AT  23
NSPEC   IS C      AT  24
NSPEC   IS C      AT  25
CONNECT IS E3  RC AT   7
CONNECT IS E1  RC AT   9
CONNECT IS E3  RC AT  10
CONNECT IS E1  RC AT  11
CONNECT IS E3  RC AT  15
CONNECT IS E1  RC AT  16
CONNECT IS E3  RC AT  17
CONNECT IS E3  RC AT  19
CONNECT IS E1  RC AT  20
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT   9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  25

STEREO ATTRIBUTES: NONE
L22           8 SEA FILE=REGISTRY SUB=L17 SSS FUL L19
L23           2 SEA FILE=CAPLUS ABB=ON  PLU=ON  L22
L28           2 SEA L22
L29           2 DUP REM L23 L28 (2 DUPLICATES REMOVED)


=> file stnguide
FILE 'STNGUIDE' ENTERED AT 10:15:04 ON 13 SEP 2005
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY, JAPAN SCIENCE
AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Sep  9, 2005 (20050909/UP).

=> d ibib abs hitstr L29 1-2
YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS' - CONTINUE? (Y)/N:y


L29  ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2005 ACS on STN  DUPLICATE 1
ACCESSION NUMBER:        2005:160883  CAPLUS
DOCUMENT NUMBER:         142:261334
```

TITLE: Process for preparing cefepime by the cyclocondensation reaction of thiourea with a brominated or chlorinated derivative

INVENTOR(S): Handa, Vijay Kumar; Kamat, Anand G.; Sivakumaran, Meenakshisunderam

PATENT ASSIGNEE(S): India

SOURCE: U.S. Pat. Appl. Publ., 5 pp.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

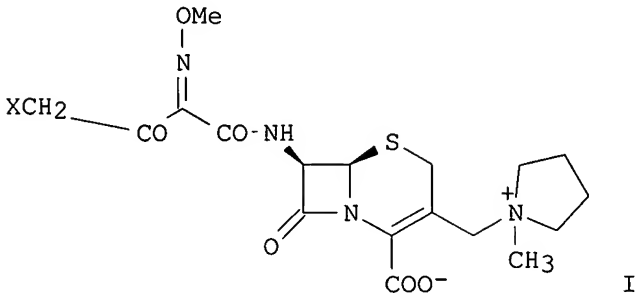
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 2005043531 | A1 | 20050224 | US 2003-688606 | 20031017 |
| PRIORITY APPLN. INFO.: | | | IN 2003-CH669 A | 20030821 |

OTHER SOURCE(S): CASREACT 142:261334

GI



I

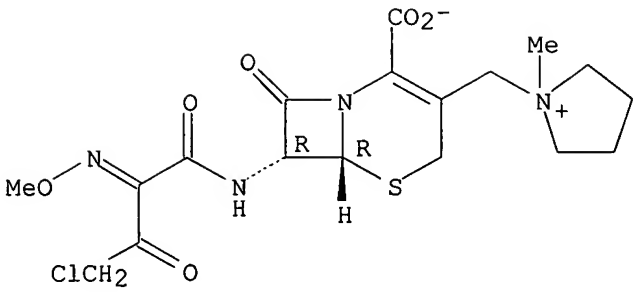
AB Cefepime, a cephalosporin antibiotic, is prepared in high yield and selectivity by the cyclocondensation of thiourea with bromo or chloro derivative I (X = Br, Cl) which is prepared by the amidation of 7-amino-3-[(1-methyl-1-pyrrolidinium)methyl]-3-cephem-4-carboxylate with a corresponding 4-halo-2-methoxyimino-3-oxobutyric acid halide. Thus, cefepime dihydrochloride monohydrate was prepared from 7-amino-3-[(1-methyl-1-pyrrolidinium)methyl]-3-cephem-4-carboxylate hydrochloride via silylation with Me3SiNHAc in CH2Cl2, acylation with freshly prepared 4-bromo-2-methoxyimino-3-oxobutyryl chloride in CH2Cl2 and cyclocondensation of intermediate I (X = Br) with H2NC(:S)NH2 in aqueous MeCOMe.

IT **846021-46-3P 846021-47-4P 846021-48-5P**
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in a process for preparing cefepime by the cyclocondensation reaction of thiourea with a brominated or chlorinated derivative)

RN 846021-46-3 CAPLUS

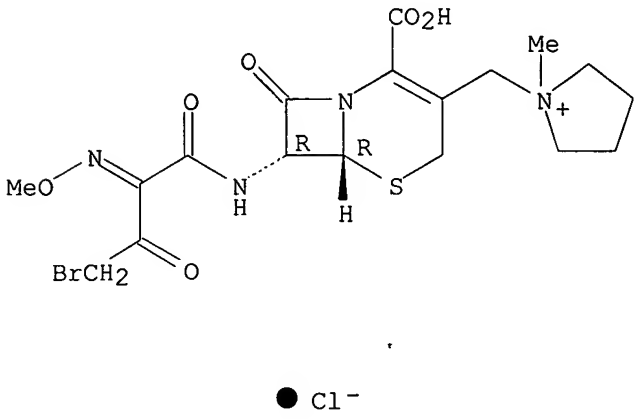
CN Pyrrolidinium, 1-[[(6R,7R)-2-carboxy-7-[[4-chloro-2-(methoxyimino)-1,3-dioxobutyl]amino]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-1-methyl-, inner salt (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry unknown.



RN 846021-47-4 CAPLUS.
CN Pyrrolidinium, 1-[[(6R,7R)-7-[[4-bromo-2-(methoxyimino)-1,3-dioxobutyl]amino]-2-carboxy-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-1-methyl-, chloride (9CI) (CA INDEX NAME)

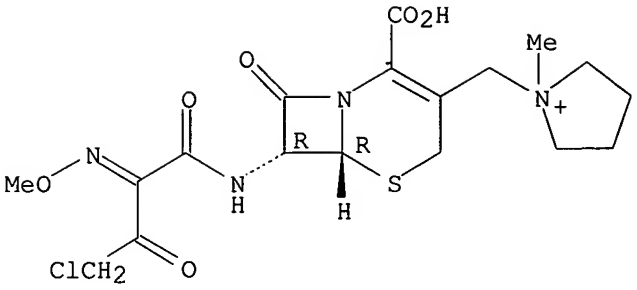
Absolute stereochemistry.
Double bond geometry unknown.



● $Cl^-$

RN 846021-48-5 CAPLUS
CN Pyrrolidinium, 1-[[(6R,7R)-2-carboxy-7-[[4-chloro-2-(methoxyimino)-1,3-dioxobutyl]amino]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-1-methyl-, chloride (9CI) (CA INDEX NAME)

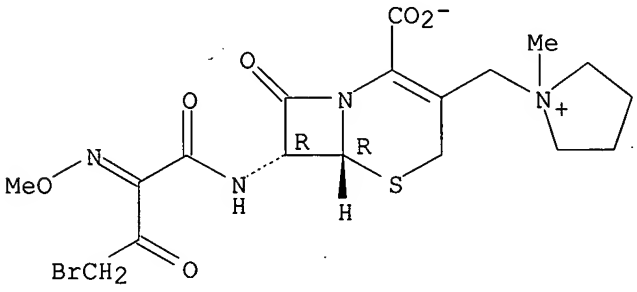
Absolute stereochemistry.
Double bond geometry unknown.



● $Cl^-$

IT **846021-45-2P**
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(process for preparing cefepime by the cyclocondensation reaction of thiourea with a brominated or chlorinated derivative)
RN 846021-45-2 CAPLUS
CN Pyrrolidinium, 1-[[(6R,7R)-7-[[4-bromo-2-(methoxyimino)-1,3-dioxobutyl]amino]-2-carboxy-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-1-methyl-, inner salt (9CI) (CA INDEX NAME)

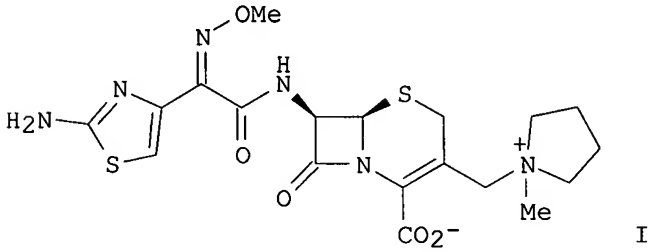
Absolute stereochemistry.
Double bond geometry unknown.



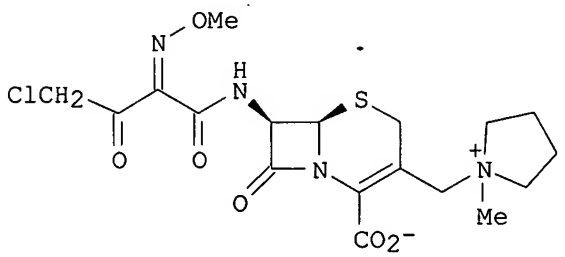
L29 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:902392 CAPLUS
DOCUMENT NUMBER: 141:366239
TITLE: A preparation of antibacterial 5-thia-1-azabicyclo[4.2.0]octane derivative (cefepime)
INVENTOR(S): Ludescher, Johannes; Sturm, Hubert; Wolf, Siegfried
PATENT ASSIGNEE(S): Sandoz A.-G., Switz.
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|

WO 2004092183 A2 20041028 WO 2004-EP3988 20040415
WO 2004092183 A3 20041209
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.: AT 2003-584 A 20030416
AT 2003-585 A 20030416
AT 2003-586 A 20030416
OTHER SOURCE(S): MARPAT 141:366239
GI



I



II

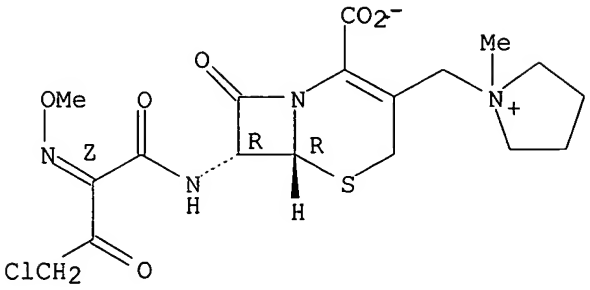
AB The invention relates to a preparation of 5-thia-1-azabicyclo[4.2.0]octane derivative I (cefepime), useful as antibacterial agent (no biol. data). For instance, 5-thia-1-azabicyclo[4.2.0]octane derivative (I•2HCl) was prepared via heterocyclization of chloro(methoxyimino)oxobutyric acid derivative II•HCl and thiourea (example 3, 99.6% of purity).

IT **780810-16-4P 780810-18-6P**
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of antibacterial cefepime from thiaazabicyclo[4.2.0]octane derivs. and thiourea)

RN 780810-16-4 CAPLUS·

CN Pyrrolidinium, 1-[[(6R,7R)-2-carboxy-7-[[(2Z)-4-chloro-2-(methoxyimino)-1,3-dioxobutyl]amino]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-1-methyl-, inner salt, monohydrochloride (9CI) (CA INDEX NAME)

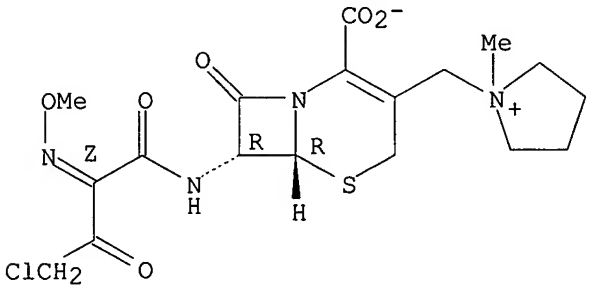
Absolute stereochemistry.
Double bond geometry as shown.



● HCl

RN 780810-18-6 CAPLUS
CN Pyrrolidinium, 1-[[(6R,7R)-2-carboxy-7-[[(2Z)-4-chloro-2-(methoxyimino)-1,3-dioxobutyl]amino]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-1-methyl-, inner salt (9CI) (CA INDEX NAME)

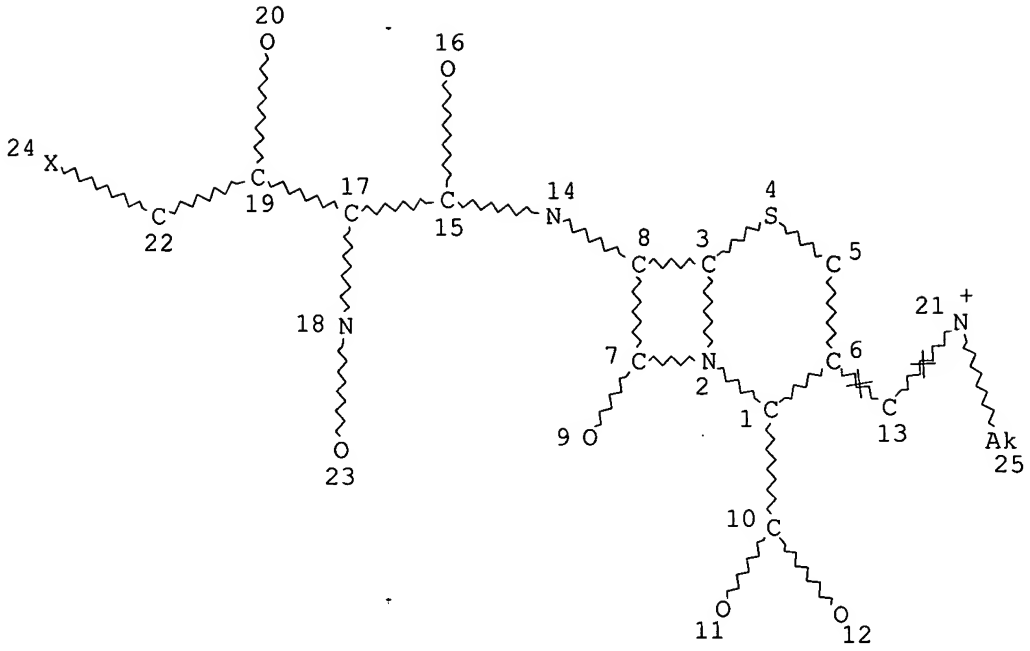
Absolute stereochemistry.
Double bond geometry as shown.



Beilstein search on narrower (requested) structure = no hits

Berch 10_688606 09/13/2005

```
=> file beilstein
FILE 'BEILSTEIN' ENTERED AT 10:23:30 ON 13 SEP 2005
COPYRIGHT (c) 2005 Beilstein-Institut zur Foerderung der Chemischen Wissenschaften
licensed to Beilstein GmbH and MDL Information Systems GmbH

FILE RELOADED ON OCTOBER 20, 2002
FILE LAST UPDATED ON JUNE 29, 2005

FILE COVERS 1771 TO 2005.
*** FILE CONTAINS  9,271,550 SUBSTANCES ***

>>>PLEASE NOTE: Reaction Data and substance data are stored in
   separate documents and can not be searched together in one query.
   Reaction data for BEILSTEIN compounds may be displayed
   immediately with the display codes PRE (preparations) and REA
   (reactions).  A substance answer set retrieved after the search
   for a chemical name, a compounds with available reaction
   information by combining with PRE/FA, REA/FA or more generally
   with RX/FA. The BEILSTEIN Registry Number (BRN) is the link
   between a BEILSTEIN compound and belonging reactions. For mo
   detailed reaction searches BRNs can be searched as reaction
   partner BRNs Reactant BRN (RX.RBRN) or Product BRN (RX.PBRN).<<<

>>> FOR SEARCHING PREPARATIONS SEE HELP PRE  <<<

**********************************************************************
* PLEASE NOTE THAT THERE ARE NO FORMATS FREE OF COST.                 *
* SET NOTICE FEATURE: THE COST ESTIMATES CALCULATED FOR SET NOTICE    *
* ARE BASED ON THE HIGHEST PRICE CATEGORY. THEREFORE; THESE           *
* ESTIMATES MAY NOT REFLECT THE ACTUAL COSTS.                         *
* FOR PRICE INFORMATION SEE HELP COST                                 *
**********************************************************************
    NEW
* PATENT NUMBERS (PN) AND BABS ACCESSION NUMBERS (BABSAN) CAN NOW BE
  SEARCHED, SELECTED AND TRANSFERRED.
* NEW DISPLAY FORMATS ALLREF, ALLP AND BABSAN SHOW ALL REFERENCES,
  ALL PATENT REFERENCES, OR ALL BABS ACCESSION NUMBERS FOR A
  COMPOUND AT A GLANCE.

=> d stat que L30
L19             STR
```



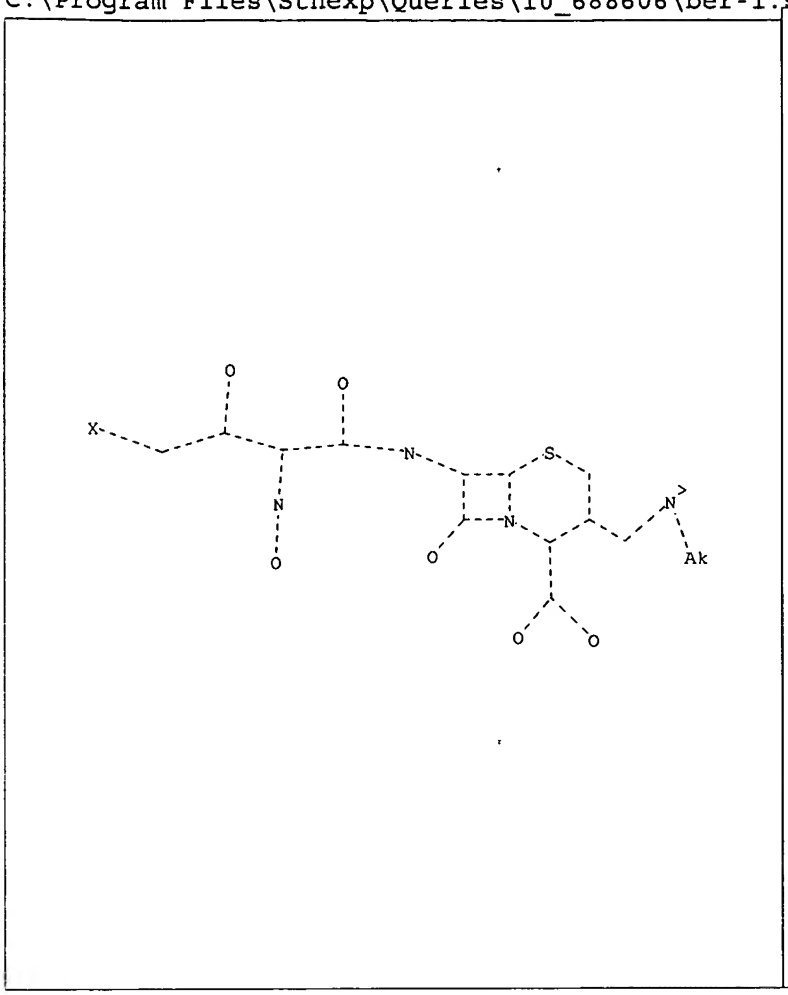

NODE ATTRIBUTES:

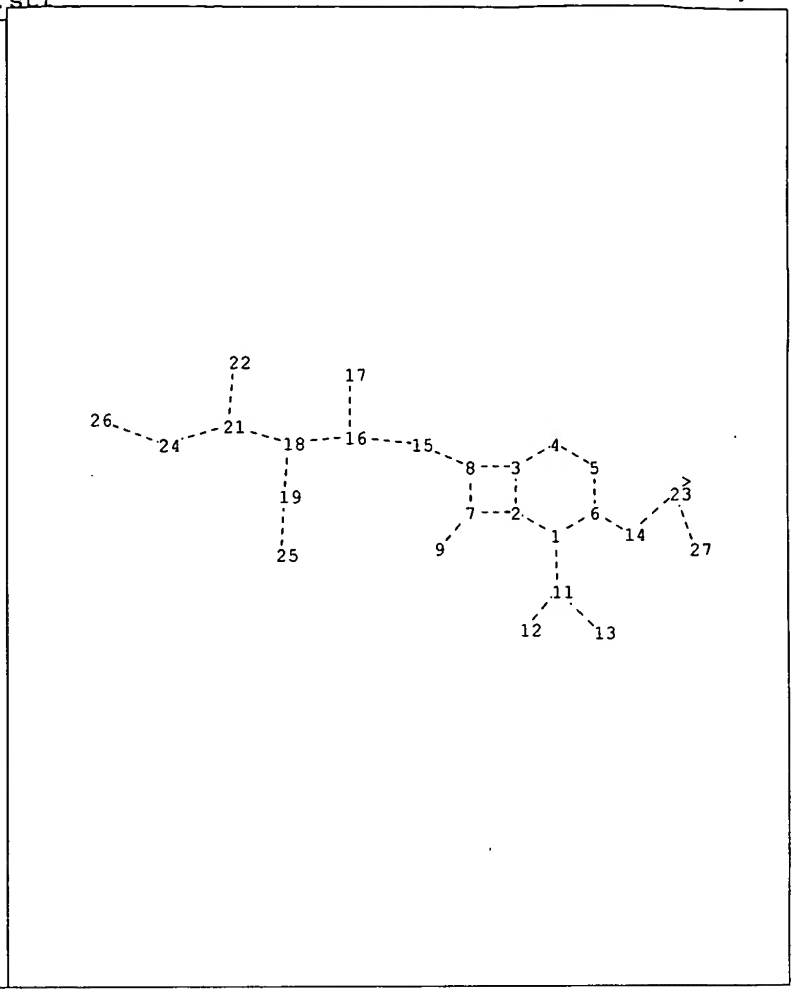
| | | | | |
|---|---|---|---|---|
| CHARGE | IS | *+ | AT | 21 |
| NSPEC | IS | R | AT | 1 |
| NSPEC | IS | R | AT | 2 |
| NSPEC | IS | R | AT | 3 |
| NSPEC | IS | R | AT | 4 |
| NSPEC | IS | R | AT | 5 |
| NSPEC | IS | RC | AT | 6 |
| NSPEC | IS | R | AT | 7 |
| NSPEC | IS | R | AT | 8 |
| NSPEC | IS | C | AT | 9 |
| NSPEC | IS | C | AT | 10 |
| NSPEC | IS | C | AT | 11 |
| NSPEC | IS | C | AT | 12 |
| NSPEC | IS | RC | AT | 13 |
| NSPEC | IS | C | AT | 14 |
| NSPEC | IS | C | AT | 15 |
| NSPEC | IS | C | AT | 16 |
| NSPEC | IS | C | AT | 17 |
| NSPEC | IS | C | AT | 18 |
| NSPEC | IS | C | AT | 19 |
| NSPEC | IS | C | AT | 20 |
| NSPEC | IS | RC | AT | 21 |
| NSPEC | IS | C | AT | 22 |
| NSPEC | IS | C | AT | 23 |
| NSPEC | IS | C | AT | 24 |
| NSPEC | IS | C | AT | 25 |
| CONNECT | IS | E3 RC | AT | 7 |
| CONNECT | IS | E1 RC | AT | 9 |
| CONNECT | IS | E3 RC | AT | 10 |
| CONNECT | IS | E1 RC | AT | 11 |
| CONNECT | IS | E3 RC | AT | 15 |
| CONNECT | IS | E1 RC | AT | 16 |
| CONNECT | IS | E3 RC | AT | 17 |

```
CONNECT IS E3  RC AT  19
CONNECT IS E1  RC AT  20
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT   9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  25

STEREO ATTRIBUTES: NONE
L30           0 SEA FILE=BEILSTEIN SSS FUL L19

100.0% PROCESSED      84 ITERATIONS                              0 ANSWERS
SEARCH TIME: 00.00.04
```

C:\Program Files\Stnexp\Queries\10_688606\ber-i.str

Structure L19



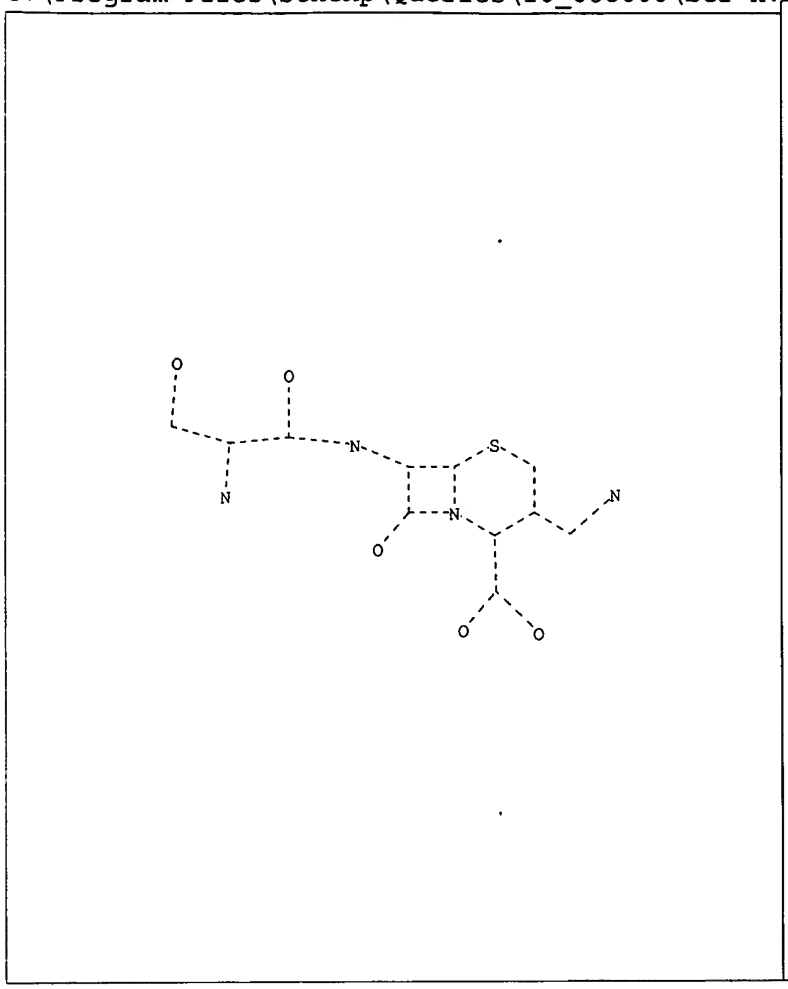



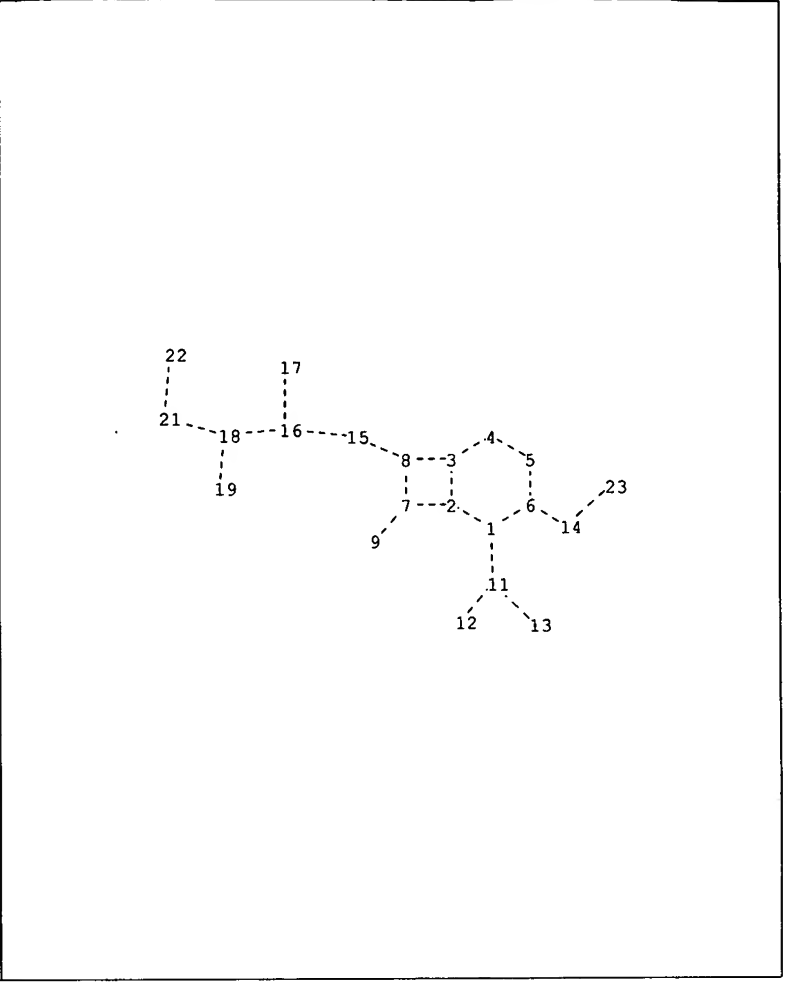

chain nodes :
9 11 12 13 15 16 17 18 19 21 22 24 25 26 27
ring nodes :
1 2 3 4 5 6 7 8
ring/chain nodes :
14 23
chain bonds :
1-11 7-9 8-15 11-12 11-13 15-16 16-17 16-18 18-19 18-21 19-25 21-22 21-24
23-27 24-26
ring/chain bonds :
6-14 14-23
ring bonds :
1-2 1-6 2-3 2-7 3-4 3-8 4-5 5-6 7-8
exact/norm bonds :
1-2 1-6 1-11 2-3 2-7 3-4 3-8 4-5 5-6 6-14 7-8 7-9 8-15 11-12 11-13 14-23
15-16 16-17 16-18 18-19 18-21 19-25 21-22 21-24 23-27 24-26

Connectivity :
7:3 E exact RC ring/chain 9:1 E exact RC ring/chain 11:3 E exact RC ring/chain
12:1 E exact RC ring/chain 16:3 E exact RC ring/chain 17:1 E exact RC ring/chain
18:3 E exact RC ring/chain 21:3 E exact RC ring/chain 22:1 E exact RC ring/chain
Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:CLASS 11:CLASS
12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS 21:CLASS
22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS

C:\Program Files\Stnexp\Queries\10_688606\ber-h.str

structure L15




chain nodes :
9 11 12 13 15 16 17 18 19 21 22
ring nodes :
1 2 3 4 5 6 7 8
ring/chain nodes :
14 23
chain bonds :
1-11 7-9 8-15 11-12 11-13 15-16 16-17 16-18 18-19 18-21 21-22
ring/chain bonds :
6-14 14-23
ring bonds :
1-2 1-6 2-3 2-7 3-4 3-8 4-5 5-6 7-8
exact/norm bonds :
1-2 1-6 1-11 2-3 2-7 3-4 3-8 4-5 5-6 6-14 7-8 7-9 8-15 11-12 11-13 14-23
15-16 16-17 16-18 18-19 18-21 21-22

Connectivity :
7:3 E exact RC ring/chain 9:1 E exact RC ring/chain 11:3 E exact RC ring/chain
12:1 E exact RC ring/chain 16:3 E exact RC ring/chain 17:1 E exact RC ring/chain
18:3 E exact RC ring/chain 21:3 E exact RC ring/chain 22:1 E exact RC ring/chain
Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:CLASS 11:CLASS
12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS 21:CLASS
22:CLASS 23:CLASS